

What is claimed is:

1. A method for manufacturing a substrate with a plasma processing system, the method comprising:

obtaining a component of a plasma processing system which has been coated with a film of material;

disposing said component in a plasma processing chamber, said component having been coated outside of said plasma processing chamber;

disposing a substrate on a chuck in the plasma processing chamber; and

forming a plasma in a processing region within the plasma processing chamber.

2. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the obtaining includes obtaining a component from one of a component manufacturer and plasma processing chamber manufacturer.

3. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein:

the substrate comprises a substrate material that is exposed to the plasma during a plasma process; and

the film of material coated on the component comprises a material that is substantially similar to the substrate material.

4. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material has been coated with a second plasma processing chamber different from said plasma processing chamber.

5. The method for manufacturing a substrate with a plasma processing system as recited in claim 4, wherein the plasma processing chamber used to coat the component is similar to the plasma processing chamber where the substrate is disposed.

6. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material comprises a minimum thickness determined

by at least one of a customer specification, a supplier specification, a process recipe, a chamber parameter, a pre-seasoning time and a type of process used to manufacture the substrate.

7. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material comprises a uniformity determined by at least one of a customer specification, a supplier specification, a process recipe, a chamber parameter, a pre-seasoning time, and a type of process used to manufacture the substrate.

8. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material is determined by at least one of a customer specification, a supplier specification, a process recipe, a chamber parameter, a pre-seasoning time, and type of process used to manufacture the substrate.

9. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material has a thickness within a range of about 1 to about 500 microns.

10. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the film of material comprises a material selected from the group consisting of silicon dioxide, titanium nitride, FSG, fluorocarbon material, aluminum, materials related to said plasma, and materials related to a mask layer on said substrate.

11. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, further comprising pumping excess gas through a pump opening arranged in the plasma processing chamber.

12. The method for manufacturing a substrate with a plasma processing system as recited in claim 11, wherein:

the obtaining includes obtaining a pumping deposition shield that has been coated with a film of material; and

the component disposing includes disposing said pumping deposition shield in the pump opening.

13. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein:

the obtaining includes obtaining a liner that has been coated with a film of material, and

the component disposing includes disposing said liner on an inner wall of the plasma processing chamber.

14. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, further comprising optically detecting a plasma process condition through a diagnostic opening arranged in the plasma processing chamber.

15. The method for manufacturing a substrate with a plasma processing system as recited in claim 14, wherein:

the obtaining includes obtaining an optical window deposition shield that has been coated with a film of material; and

the component disposing includes disposing said optical window deposition shield in the diagnostic opening.

16. The method for manufacturing a substrate with a plasma processing system as recited in claim 11, wherein:

the obtaining includes obtaining a pumping baffle plate that has been coated with a film of material; and

the component disposing includes disposing the pumping baffle plate such that the pumping baffle plate separates the pump opening from the processing region, said pumping baffle plate extending from the inner wall of the process chamber to the periphery of the chuck and comprising a plurality of holes there through.

17. The method for manufacturing a substrate with a plasma processing system as recited in claim 16, wherein the pumping baffle plate has a shape selected from the group consisting of a cylindrical form, a polygonal form and an elliptical form.

18. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein:

the obtaining includes obtaining a plasma baffle assembly that has been coated with a film of material; and

the method further comprises attenuating the plasma within the plasma processing chamber in a space proximate to the substrate with the plasma baffle assembly.

19. The method for manufacturing a substrate with a plasma processing system as recited in claim 18, wherein the baffle assembly has a shape selected from the group consisting of a cylindrical form, a conical form, a polygonal form and a spherical form.

20. The method for manufacturing a substrate with a plasma processing system as recited in claim 18, wherein the plasma baffle assembly has holes through a wall of said plasma baffle assembly.

21. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, further comprising:

moving the chuck to the plasma processing region with a moving assembly.

22. The method for manufacturing a substrate with a plasma processing system as recited in claim 21, wherein:

the obtaining includes obtaining a bellows shield that has been coated with a film of material; and

the component disposing includes disposing the bellows shield along the moving assembly and at a periphery of the chuck.

23. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein:

the obtaining includes obtaining a shield ring and a focus ring that have been coated with a film of material; and

the component disposing includes disposing the ring member and the focus ring on the chuck at a periphery of the substrate to control a plasma condition proximate to this periphery.

24. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the plasma is formed by a plasma generating system that comprises an electrode disposed in the plasma processing chamber.

25. The method for manufacturing a substrate with a plasma processing system as recited in claim 24, wherein the obtaining includes obtaining the electrode that has been coated with a film of material.

26. The method for manufacturing a substrate with a plasma processing system as recited in claim 25, further comprising injecting process gas through a plurality of holes in the electrode.

27. The method for manufacturing a substrate with a plasma processing system as recited in claim 25, wherein the electrode is grounded.

28. The method for manufacturing a substrate with a plasma processing system as recited in claim 24, wherein:

the obtaining includes obtaining an insulating member that has been coated with a film of material; and

the component disposing includes disposing said insulating member between the electrode and an inner wall of the plasma processing chamber.

29. The method for manufacturing a substrate with a plasma processing system as recited in claim 24, wherein:

the obtaining includes obtaining an upper shield ring that has been coated with a film of material in the; and

the component disposing includes disposing said upper shield ring at a periphery of the electrode to control a plasma condition proximate to this periphery.

30. The method for manufacturing a substrate with a plasma processing system as recited in claim 1, wherein the forming includes forming the plasma with a plasma generating system that comprises an inject plate assembly for injecting process gas in the processing

region and an electrostatic radio frequency source having a process tube housing a magnetic coil.

31. The method for manufacturing a substrate with a plasma processing system as recited in claim 30, wherein the obtaining includes obtaining the inject plate assembly and the process tube that has been coated with a film of material.